

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
13 October 2005 (13.10.2005)

PCT

(10) International Publication Number  
**WO 2005/095407 A1**

(51) International Patent Classification<sup>7</sup>: **C07D 487/08**,  
401/14, 403/14, A61K 31/403, 31/497, 31/4439

(21) International Application Number:  
PCT/US2004/008027

(22) International Filing Date: 17 March 2004 (17.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US): **GLAXO GROUP LIMITED** [GB/GB]; Glaxo Wellcome House, Berkeley Avenue, Greenford, Middlesex UB6 0NN (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BUSCH-PE-TERSEN, Jakob** [DK/US]; 709 Swedeland Road, King of Prussia, PA 19406 (US). **COOPER, Anthony, W., J.** [GB/GB]; Gunnels Wood Road, Stevenage, Hertfordshire SG1 2NY (GB). **LAINÉ, Dramane, I.** [FR/US]; 709 Swedeland Road, King of Prussia, PA 19406 (US). **PALOVICH, Michael, R.** [US/US]; 709 Swedeland Road, King of Prussia, PA 19406 (US). **MCCLELAND, Brent, W.** [US/US]; 709 Swedeland Road, King of Prussia, PA 19406 (US).

(74) Agents: **SIMON, Soma, G.** et al.; GlaxoSmithKline, Corporate Intellectual Property, UW 2220, 709 Swedeland Road, P.O. Box 1539, King of Prussia, PA 19406-0939 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **M<sub>3</sub> MUSCARINIC ACETYLCHOLINE RECEPTOR ANTAGONISTS**

(57) Abstract: Novel dimeric benzoazabicycloheptane compounds, pharmaceutical compositions, processes for their preparation, and use thereof in treating muscarinic acetylcholine receptor mediated diseases are disclosed.

WO 2005/095407 A1